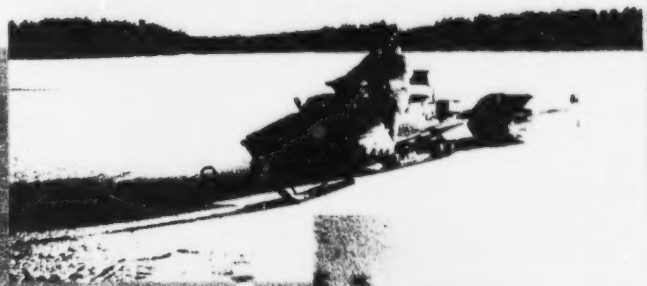
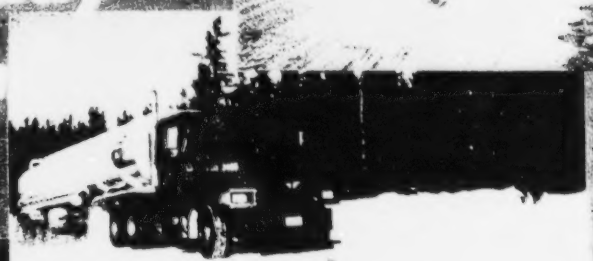
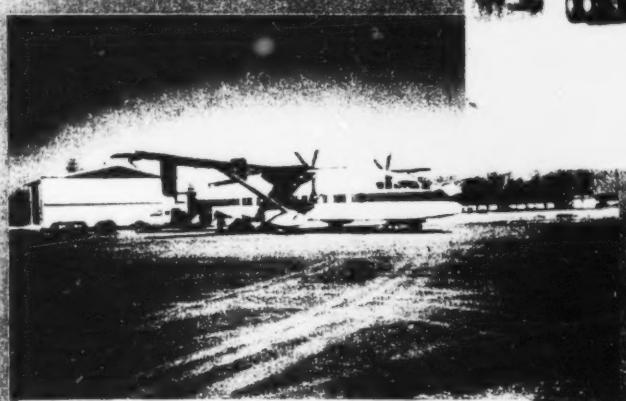
East Side of Lake Winnipeg



All Weather Road Justification and Scoping Study Executive Summary





Manitoba
Highways and
Government Services

H.M. Westdal & Associates

DILLON
CONSULTING

101-01573/

Our File: 99-6652-04

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August 28, 2000

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Attention: Mr. Donald S. Norquay
Assistant Deputy Minister

All-Weather Road East Side of Lake Winnipeg
Justification and Scoping Study Executive Summary

Dear Mr. Norquay:

We are pleased to submit this Executive Summary for the All-Weather Road, East Side of Lake Winnipeg Justification and Scoping Study.

The Study involved extensive community consultation, analysis of existing and future transportation costs for the existing Winter Road System, analysis of two All-Weather Road Scenario transportation costs, and the identification of potential economic spin-offs, environmental impacts, and socio-economic consequences. This work was initiated in August of 1999 and completed one year later.

Completion of the study was achieved due to the energetic and enthusiastic support of numerous people; too many to thank individually. We would, however, like to thank the Government Officials, Managers, and Staff from Provincial, Federal, and First Nations agencies that were very helpful and cooperative. The same was true of the various Resource development companies and Transport companies whose interests were also involved.

We would also like to thank the residents of the various communities and other potential stakeholders who were very generous with their insights and comments. We wish to thank all the individuals and groups who expressed an interest in this study. A special thank you to the Steering Committee and the Department of Highways, whose leadership made the successful completion of this Study possible.

Dillon Consulting Limited

We trust the study results will assist government and community decision makers in their future deliberations on the All-Weather Road issue.

Respectfully submitted,

DILLON CONSULTING LIMITED

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Project Director

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Enclosure

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1.0 INTRODUCTION AND STUDY FINDINGS

The **Study Area** to the east and north of Lake Winnipeg is one of the last major areas in Manitoba not served by a system of All-Weather Roads. The small size of communities in this area, their remoteness, and the lack of major economic enterprise have resulted in a transportation system that has a modest capital cost, but provides an uncertain service to local residents. To address these transportation concerns, a study was commissioned by the Department of Highways and Government Services to determine the Economic Justification for an All-Weather Road in this area. Geographically, the study area extends from Hollow River on the south to Oxford House on the north; Lake Winnipeg on the west to the Ontario border.

An All-Weather Road system is expensive to build and involves a permanent commitment to maintenance and repair. The economic justification for extending the All-Weather Road system into these communities involves an assessment of least cost alternatives, net benefits associated with each alternative, and an assessment of potential economic activity created by the improved access. Other considerations are public and local community opinion, social objectives, and environment impacts.

To ensure that the study adequately addressed the numerous and at times varying interests, a Study Steering Committee was appointed to review the Terms of Reference, monitor the study progress, and examine and review the study findings. This Committee consisted of representatives from:

- Manitoba - Highways/Government/Conservation Services/Industry Trade and Mining
- Manitoba - Aboriginal and Northern Affairs/Intergovernmental Affairs
- Indian and Northern Affairs Canada
- South East Resource Development Council
- Island Lake Tribal Council
- Keewatin Tribal Council
- Manitoba Hydro

The **Technical Objectives** and **Community Consultation Objectives** of the study were to assess the costs of various travel modes associated with the present transportation system; to assess future costs and benefits that would be derived from an All-Weather Road; define stakeholder benefits; examine other indirect spin-off benefits that might accrue from an All-Weather Road; and gauge community support for the construction of an All-Weather Road on the East Side of Lake Winnipeg.

The **Study Findings** should be viewed in the context and scope of the original Terms of Reference and generally include the following:

- Only two major All-Weather Road route scenarios were evaluated. These routes included an All-Weather Road from Manigotogan to serve the entire East Side of Lake Winnipeg, and an All-Weather Road to Berens River (SERDC area), including an All-Weather Road from Norway House/Cross Lake to serve the ILTC/KTC communities.

- No specific All-Weather Road routes were actually identified; however, all communities were assumed to be provided with access.

- The estimated costs and distances for an All-Weather Road are based on conceptual plans only. More reliable cost estimates can only be established after a more detailed route location study and environmental review have been carried out.

- All-Weather Road costing essentially reflected the most direct routes and minimal travel distances/times. Hence, All-Weather Road costs could increase if more indirect routes are chosen.

- Potential environmental impacts and social issues, that were identified have not been addressed in any specific detail and will require a comprehensive review and a much greater degree of community consultation.

The **General Conclusions** of this study are:

- The existing winter road system continues to provide **marginally acceptable** service to communities on the East Side of Lake Winnipeg **in most years**, but total costs are rising with the growing population.

- The **majority** of the communities on the East Side of Lake Winnipeg appear **to support** an All-Weather Road on the basis of reduced cost of living, more reliable emergency services, improved health, education and social services, and enhanced personal travel opportunities.

- These same communities have **concerns about the impacts** of an All-Weather Road and the resulting resource development on traditional lifestyles, land use, the environment, and control over their future destinies.

- Because of rapid population growth of 2.5 to 5.0 percent/year, an All-Weather Road can be **justified** for many of the communities on the East Side of Lake Winnipeg on the basis of long-term **transportation cost savings** alone (i.e., benefit-cost rates >1.0).

-2

- **A north-south All-Weather Road from Manigotogan** to Bloodvein to Berens River to St. Theresa Point/Wasagamack to Garden Hill to Gods Lake Narrows to Oxford House is justified on the basis of $65.9 M net benefits and a **benefit-cost ratio of 1.27,** assuming that currently identified new resource development takes place. Without potential forestry, resource development projects such as PFPC expansion, Bipole III, and enlarged fisheries, there is a reduced justification for the All-Weather Road (net benefits of $12.8 M+ (benefit-cost ratio of 1.05).

- For an All-Weather Road system from the south up to St. Theresa/Wasagamack, the **economic spin-offs** related to the expansion of the forest industry, fisheries, mining, and tourism could increase the **benefit-cost ratio of the optimized main stem project to 1.5** and perhaps as high as 1.8. The estimate of the number of direct First Nation jobs that could be created due to the All-Weather Road construction and resulting resource development range from 200 to 400. Overall, total Manitoba employment could be 800 to 1000. Social benefits related to improved health and standards of living would be additional bonuses.

- An **All-Weather Road from Norway House** (or Cross Lake) has lesser justification with a net benefit of $7.2 M - **benefit-cost ratio of 1.04**. Its lower capital cost is offset by lower transport cost savings (freight and passenger) and lower development potential. This scenario, including the connection of Bloodvein/Berens River to the south, is justified if PFPC expansion and Bipole III projects proceed.

- **Extension** of this All-Weather Road to serve **all of** the East Side of Lake Winnipeg **communities** reduces the **benefit-cost ratio** to 1.04 and the net benefit to $21.4 M for the route from the south. For the route from the west, the benefit-cost ratio is 0.82 with net project costs of $61.9 M. Without the identified new resource developments, the net costs of the project would be $32.9 M for a north-south route and $94.6 M for an east-west route.

- Individually, for the communities more remote from the main stem of the All-Weather Road, the **extension of the** All-Weather Road to Red Sucker Lake would require relatively little new resource development. **Little Grand Rapids/Pauingassi, Poplar River, and Gods River** would **require significant resource development and socioeconomic justification**.

- Successful implementation of a **Regional Centre** for government administration/education/health and resource development in Norway House, Cross Lake, or Island Lake area could bring the **benefit-cost to near unity for the east-west route** and **1.09 for a Regional Centre in the Island Lake area on the north-south route** even without new resource development.

- **Mild winter conditions** have, and are, a significant cost issue for winter road systems. If global warming forecasts are even partially correct, the **frequency of weather-related road system failures will become a regular and very expensive occurrences**.

- The forecasted **doubling of the region's population** within 20 years will put a **tremendous strain on the existing transportation/infrastructure system** and even on the social/traditional fabric of the area communities or the regional environment. A status quo scenario seems very unlikely even though some traditionalists would prefer to avoid change at any cost.

- **Traditional values/traditional land uses** will have to compete actively with the growing population/infrastructure needs of the various communities. A rational, at times compromising approach/dialogue will be required to ensure that the future development draws the best from traditional/technological sectors.

- **Environmental impacts** of an All-Weather Road can be **acceptably managed** if the appropriate steps are taken to define all the important resources in the area, to identify appropriate land uses, and to set in place a regional control process for administering access and use.

- **Socioeconomic issues** for the area communities are not inconsistent with an All-Weather Road providing that the community and regional planning processes have definitive input to the project and post project approval steps.

- A **tourism development plan** and other development strategies are needed to maximize community economic benefits.

- The communities have expressed an interest in **more extensive consultation on social, environmental, and economic issues**. Every effort should be made to facilitate this.

2.0 TRANSPORTATION SYSTEM ANALYSIS

Historically, the Study Area's regional transportation needs were met by watercraft in summer and tractor trains in winter. This meant that goods required by the various communities had to be transported during three-month windows in both winter and summer.

In the 1960s, the advent of annually constructed winter roads, under government contracts, provided improved reliability of winter freight delivery. Reduced costs followed as a result of increased competition in the transport industry. Relatively favourable weather conditions from 1960 through 1985 meant that there was minimal disruptions to winter road traffic during the crucial February-March period.

However, in the last 30 years, summer transportation by watercraft has declined. Improved air services, due largely to the construction of community and lodge airstrips, have resulted in a large shift to air passenger travel and a smaller shift to air freight movement of some goods in summer. Barge traffic on Lake Winnipeg has declined drastically and is at risk of discontinuation.

The following photographs depict the progressive changes in transport modes:

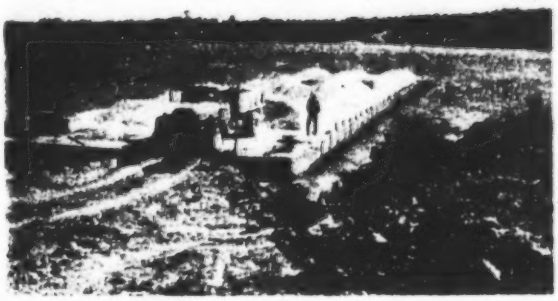
Dog Teams from Former Era

Tractor Train Operation
Sigfusson Transportation Company 1968

Flextrack – Nodwell Model

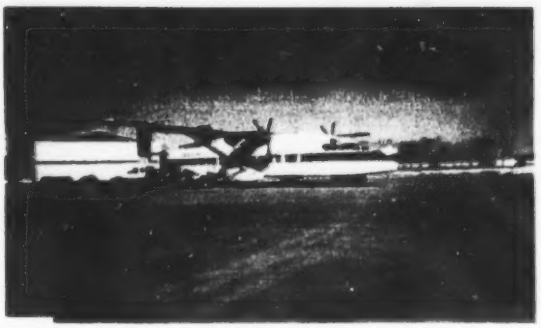
Snowmobiles still in use

DHC-6 Twin Otter STOL Aircraft



Unloading Gravel Barge at Berens River

Barge Service for
Construction Equipment



Larger Aircraft in Use Today

Winter Road in Use Today

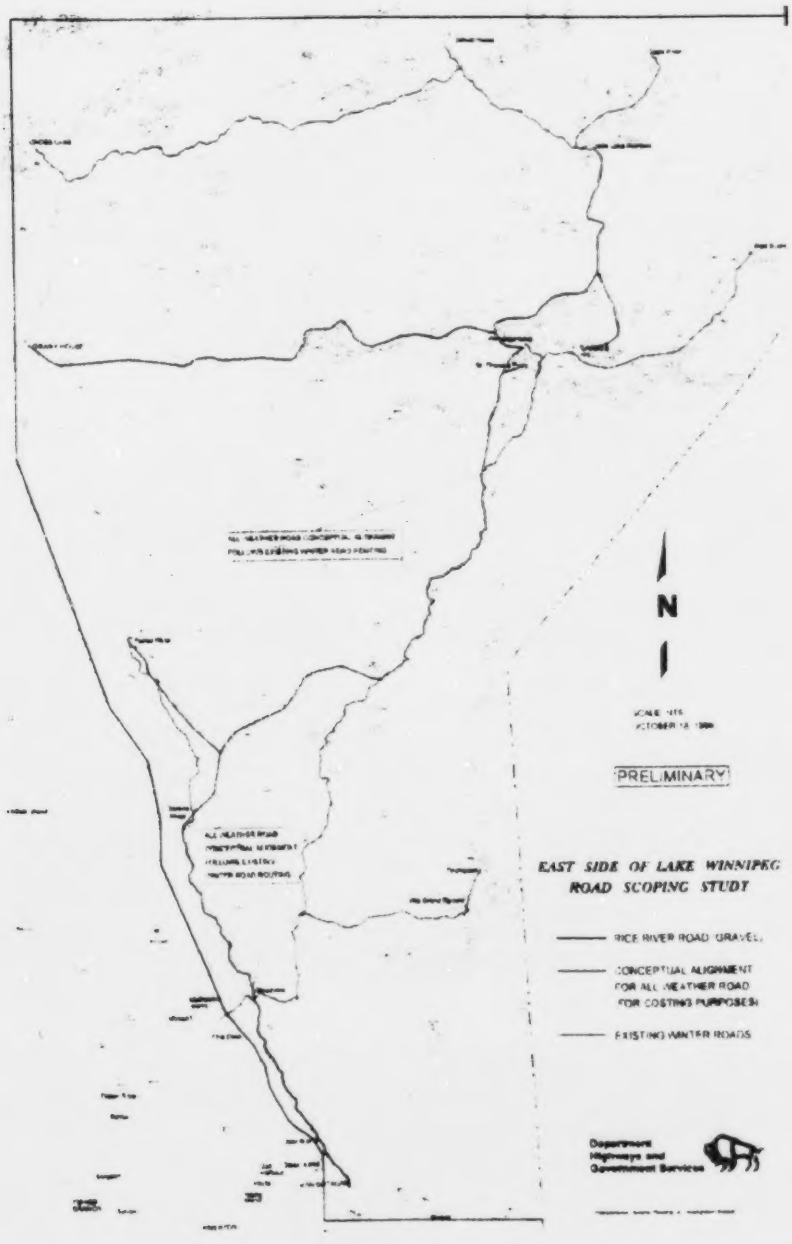
Winter Road Alignment North of Manigotogan

Analysis of the Historical Population Growth for this region yielded the following selectively grouped community population forecasts based on common road terminal points or nodes:

Population Forecast

	1998	2010	2020
Bloodvein/Berens River/Poplar River	3,452	4,900	7,000
	(3.5%/year growth)		
Little Grand Rapids/Pauingassi	1,533	2,200	3,000
	(3.5%/year growth)		
Ste. Theresa/Wasagamack	3,607	5,300	7,900
	(4.8%/year growth)		
Garden Hill/Red Sucker Lake	3,537	5,000	7,000
	(3.5%/year growth)		
Oxford House/Gods Lake/Gods River	3,523	4,500	5,800
	(2.5%/year growth)		
Total	**15,652**		**30,700**

Existing Winter Road
and Conceptual All-Weather Route Map



The Existing Winter Road System and a conceptual All-Weather Road are shown on the foregoing map. Existing winter road system travel distances (km) for various communities are identified in the following table:

Study Communities	To Pine Falls	to Winnipeg				to Thompson		to The Pas
		Via Pine Dock	Via Mani-gotogan	Via Norway House[3]	Via Cross Lake[3]	Via Norway House[3]	Via Cross Lake[4]	Via Norway House
Bloodvein	159	**216**[1]	**270**	—	—	—	—	—
Berens River	239	**296**	**350**	—	—	—	—	—
Poplar River	337	**392**	**446**	—	—	—	—	—
Little Grand Rapids	299	**356**	**410**	—	—	—	—	—
Pauingassi	315[1]	**372**[1]	**426**[1]	—	—	—	—	—
St. Theresa Point	510	**567**	**621**	965	1164[1]	474	685[1]	600
Wasagamack	520	**577**	**631**	955	1174[1]	—	—	600
Garden Hill	526[1]	**583**[1]	**637**[1]	981	1148	490[1]	675[1]	616[1]
Red Sucker Lake	622[2]	**679**[2]	**733**[2]	1077[2]	1128	586[2]	—	712[2]
Gods Lake Narrows	626	683	737	1081	**1048**	590	559	763
Gods River	676[5]	733[5]	787[5]	1141[5]	**1108**[5]	650[5]	619[5]	703[6]
Oxford House	696	753	807	1164	**945**	673	476	620[6]

1 - includes 16± km of lake ice crossing
2 - includes 96± km of lake ice crossings
3 - includes 745 km of All-Weather Road
4 - includes 255 km of All-Weather Road
5 - includes 60 km of lake ice
6 - via Cross Lake (not Norway House)
bold text - primary winter roads
Underlined text - winter road addition 98/99

Existing Gravel Airstrips operated by Manitoba Northern Airports are found in the following communities:

- Bloodvein (3000 feet long) - considered to require upgrading
- Berens River (2900 feet long) - considered to require upgrading/extension
- Poplar River (2450 feet long) - considered to require upgrading/relocation
- Little Grand Rapids (2800 feet long) - considered to require upgrading/relocation
- Pauingassi - has no airstrip
- St. Theresa Point (3400 feet long) - proposed for relocation
- Island Lake (Garden Hill) (4000 feet long)
- Red Sucker Lake (3000 feet long)
- Gods Lake Narrows (3420 feet long)
- Gods River (3520 feet long)
- Oxford House (3270 feet long)

Existing Ferry and Barge Service consists of the following:

- Provincial Ferry between Pine Dock and Bloodvein
- Water Enterprises Charter Freight Services from Selkirk to Poplar River
- Berens River (formerly Poplar River) Community Service
- Freshwater Fish Marketing Corporation Goldfield Fish Barge

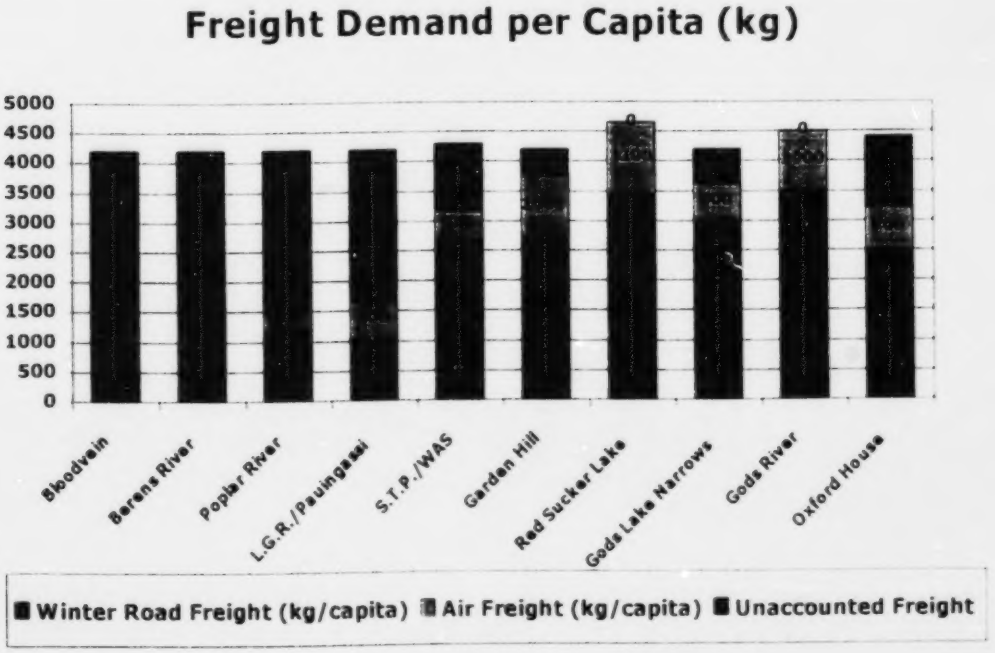
3.0 CURRENT SYSTEM TRAFFIC

The Winter Road System is primarily geared to handle community freight movements. Analysis of the winter road freight transport data has revealed that on an annual per capita basis, the documented current freight hauled on the winter road system is relatively low at 500 to 1700 kg/capita/year for the South East Tribal Council communities compared to the approximately 3000 kg/capita/year for both the Island Lake Tribal Council and Keewatin Tribal Council communities. The following figure provides for comparison, the per capita winter road and air freight traffic movements relative to the total estimated freight requirements of approximately 4000 kg/capita/year.

SERDC communities bring in 15 to 50 percent of their freight needs by winter road trucks, barges, and aircraft. Personal vehicles make up the difference.

ILTC communities bring in 80 to 90 percent of their freight needs by winter road trucks. Aircraft provides the balance.

KTC communities bring in 85 percent of their freight by winter road trucks. Aircraft and personal vehicles provide the balance.



Other Winter Road Traffic consists of:

- Pulpwood transport on the existing winter roads from Berens River to Manigotogan has averaged 15 000 tonnes/year over the last seven years. Actual wood moved has ranged from zero in 1997-98 to as high as 55 000 tonnes/year.
- Gravel transport on limited portions of the winter road network averaged 4000 tonnes/year for SERDC and 13 000 tonnes/year for ILTC.
- Fuel and material transport for Manitoba Telephone System and various lodges:
  - 450 tonnes/year in SERDC area
  - 200 tonnes/year in ILTC area
  - 750 tonnes/year in KTC area

The Estimated Total Community Traffic is illustrated in the following table.

Estimated Total Community Traffic - 2000

Mode	Winter Road Freight (tonnes/year)	Air Freight (tonnes/year)	Barge Freight (tonnes/year)	Air Passenger (trips/year) (in and out)	Individual Vehicle Travel (vehicles/year)	Helicopters / Other Aircraft (days/year)
Bloodvein	445	—	3,000	3,300	1,000	20
Berens River	2,720	160	2,000	4,000	800	10
Poplar River	1,150	290	1,600	5,700	1,000	10
Little Grand Rapids	1,100	630	—	7,700	1,100	20*
Pauingassi	500	285	—	3,000	500	10*
St. Theresa Point	6,500	1,100	—	14,000	350	10*
Wasagamack	3,200	500	—	4,000	150	10*
Garden Hill (Island Lake)	8,000	2,900	—	46,000	—	50*
Red Sucker Lake	2,250	800	—	7,500	—	5
Gods Lake Narrows	4,000	800	—	12,000	—	40*
Gods River	1,600	460	—	8,000	—	10
Oxford House	4,300	1,200	—	15,000	800	10

* Includes in-community shuttles as well as non-airstrip planes/helicopter traffic

4.0 CURRENT SYSTEM COSTS AND SERVICE LEVELS

The **Current System Costs** reflect the short seasonal access, slow speeds, and high vehicle maintenance costs on winter roads. Current system costs are:

- 60 percent higher for winter road freight than for a similar All-Weather Road.
- A factor of 10 higher for air freight than for an All-Weather Road.
- At least double for air passenger traffic compared to personal vehicle travel on an All-Weather Road.

Service Levels are typically poor due to:

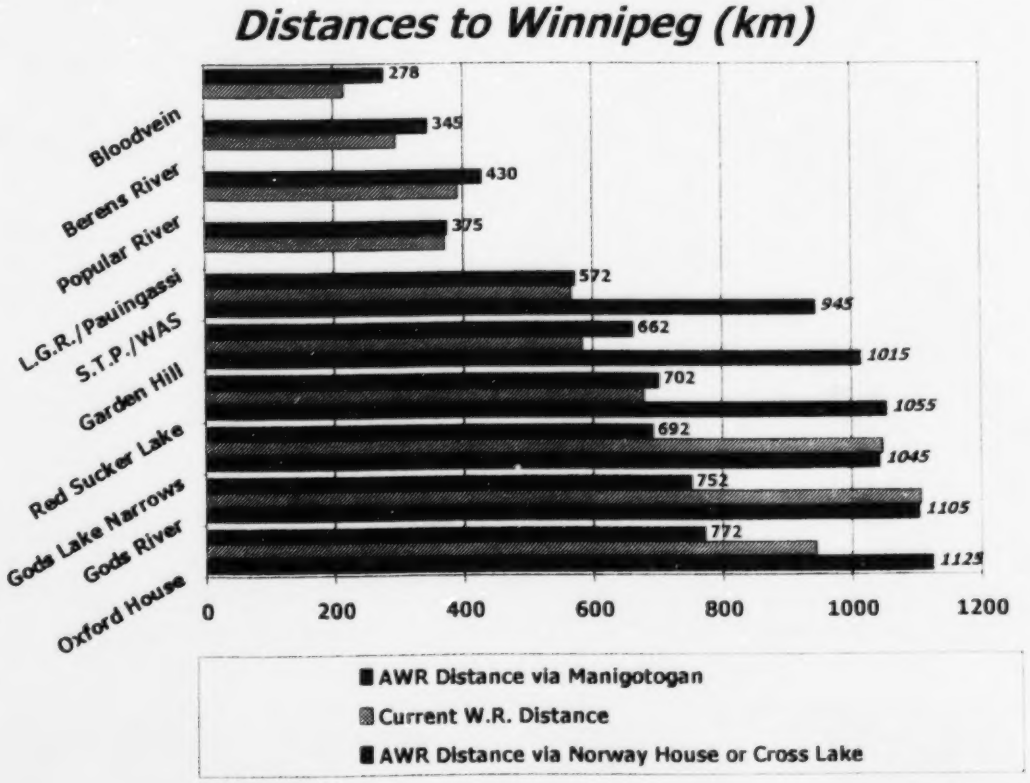
- 30 to 60 days/year availability of winter roads; periodically no availability at all.
- Three to four month shipping season on Lake Winnipeg, which can be further reduced by bad weather.
- Variable, demand driven, air service; scheduled daily but with many cancellations due to low demand.
- Substantial weather delays or outright failure of service in some months due to fog, storms, and fires.

5.0 FUTURE SYSTEM OPERATIONS

Road Freight Costs, which are a function of **Travel Distance** and **Travel Time** will be reduced with an All-Weather Road system. Existing winter road freight and 90 percent of air freight are expected to make use of an All-Weather Road and this will result in significant cost savings.

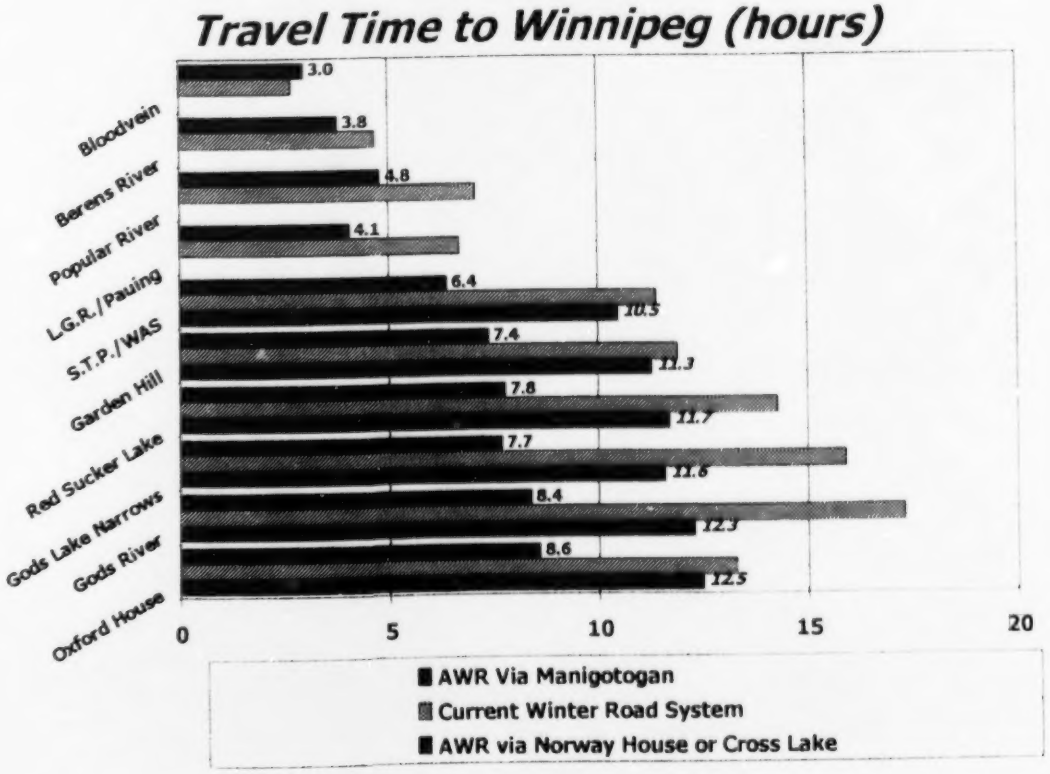
As illustrated below, an All-Weather Road going west to Norway House from the KTC communities will have relatively unchanged travel distances. The same All-Weather Road going to the ILTC communities will result in a 40 percent increase in distance on trips to Winnipeg, compared to the current winter road system.

A north-south All-Weather Road would see slightly longer distances for SERDC and ILTC communities compared to the winter road system, but would achieve a 30 percent distance reduction for the KTC communities.



Travel Times on an All-Weather Road will typically be 30 to 40 percent faster than the travel time on a winter road. As illustrated below, travel times for an east-west connection from Norway House will be 5 to 25 percent less than winter road time for the KTC communities. However, the times will only be reduced by 5 to 15 percent for the ILTC communities.

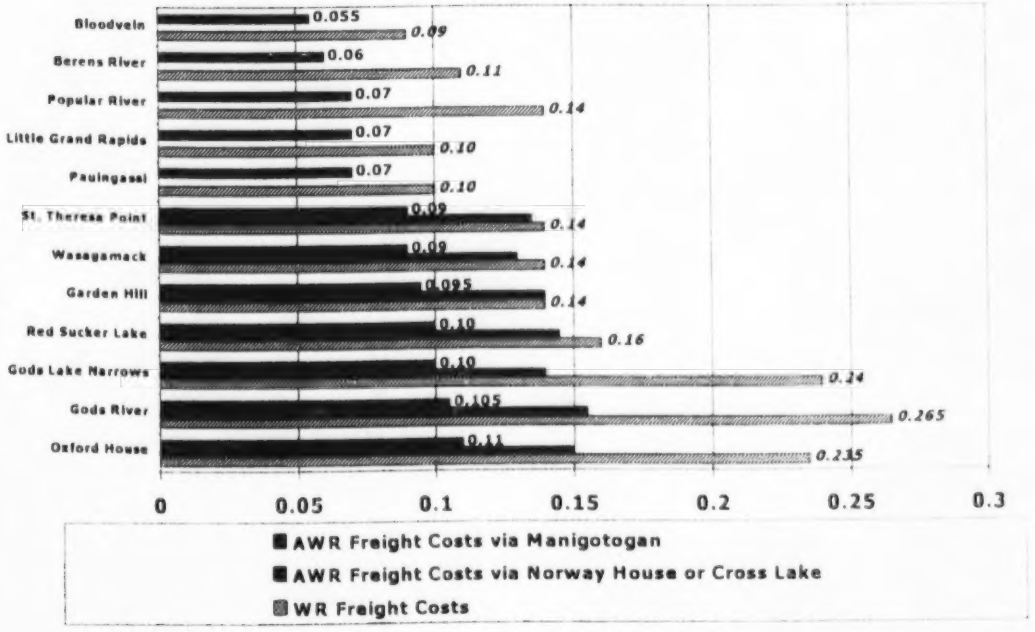
A north-south All-Weather Road via Manigotogan will reduce winter road travel times by 25 percent for SERDC communities, 40 percent for ILTC communities, and 50 percent for KTC communities.



All-Weather Road Freight Rates will be significantly lower (40 to 60 percent) for all communities under a north-south route scenario. In comparison, an east-west connection through Norway House or Cross Lake, as shown below, would see little, if any, freight rate reductions for ILTC communities, and a 40 percent reduction for the KTC communities.

Consequently, because ILTC communities contribute the greatest freight volumes, potential freight rate savings are substantially higher for a north-south All-Weather Road than for an east-west All-Weather Road.

Freight Rates to Communities ($/kg)



Air Passenger Travel within this region is primarily destined for Winnipeg. Except for the KTC communities, 80 to 90 percent of the scheduled air service originates or terminates in Winnipeg.

Overall air passenger travel will be significantly reduced by an All-Weather Road, largely as a result of the more reasonable road travel times. The following table suggesting the probable shift from air travel to All-Weather Road travel reflects the better travel times available for a north-south All-Weather Road compared to an east-west connection.

Potential travel cost savings for a north-south route are based on a 60 percent modal shift largely due to lower costs associated with individual vehicle travel. An east-west All-Weather Road will only be able to achieve a 40 percent modal shift because of longer travel times or distances and higher costs for individual vehicle travel.

All-Weather Road System - Air Passenger Traffic

Travel By	Winter Road System Allocation (%)	All-Weather Road Community Access Via Manigotogan (%)	All-Weather Road Community Access via Norway House (%)
Local Government	15	-10	-5
Senior Governments	10	-5	-5
Medical Services/Evacuation	15	-10	-5
Educational/Social Services	10	-5	-5
Law Enforcement/Justice System	10	-5	-5
Utilities/Infrastructure/Lodges/O&M	10	-5	-5
Tourism/Commercial/Industrial	20	-10	-5
Personal/Individual	10	-10	-5
TOTALS	**100**	**-60**	**-40**

6.0 RELIABILITY CONSTRAINTS

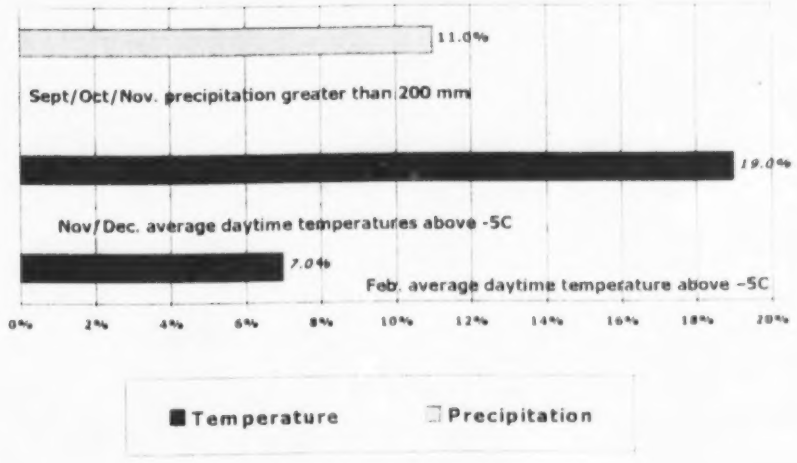
Reoccurrence of Unusually Mild Winters must be anticipated. Analysis of available historical temperatures and precipitation data for the Berens River, Island Lake, Cross Lake, and Gillam areas suggests that the warm 1997-98 climatic event could be expected to occur in 5 to 15 percent of the years.

Consequently, global warming cannot be directly cited for the 1997-1998 event. However, global warming, as it is frequently interpreted for Manitoba, would increase winter temperatures and precipitation. Hence, winter roads will become impassable on a more frequent basis.

The reliability of winter roads will therefore be compromised relatively frequently. As seen on the following figure, a coincidence of high fall precipitation (11 percent probability) and high November to December temperatures (19 percent probability) could severely reduce the available time for winter road traffic. A warm February event (7 percent probability) could wipe out the winter road on its own.

Winter Road Reliability – Probability (%)

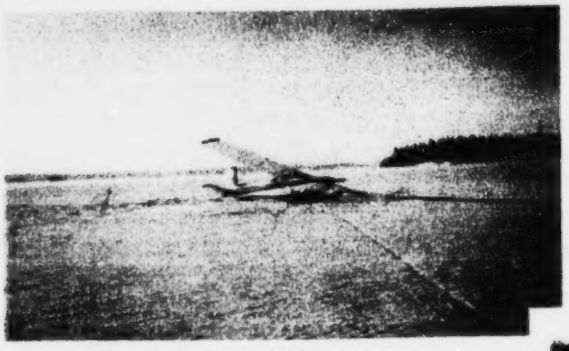
Historical Weather Conditions similar or worse than 1997-98



Other weather reliability issues which can seriously disrupt the overall area transportation are

- Lower winter road safety standards.
- Lake and river ice thickness.
- Blizzard conditions.
- Fog and thunderstorms/forest fires.
- Shortened shipping seasons.

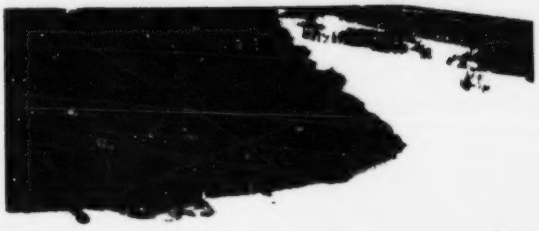
The following photographs illustrate many of these problems.



Travel Difficulties
Relating to Air Traffic

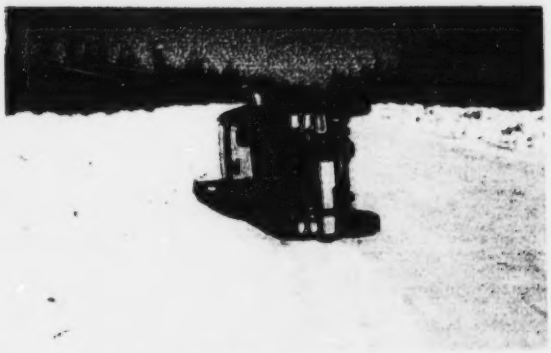
Travel Difficulties Relating
to Winter Road Travel

Travel Difficulties Relating
to Winter Road Travel



Travel Difficulties Relating to Winter
Road Travel - Burn off of Fuel Spill

Travel Difficulties Relating to Winter Road Travel Overturned Fuel Tankers



Travel Difficulties Relating to Winter Road Travel

Travel Difficulties Relating to Winter Road Travel

Crack in Lake Winnipeg Ice at Pine Dock Crossing

7.0 ECONOMIC SPIN-OFF BENEFITS

The direct and immediate benefits of an All-Weather Road are reduction in costs of transporting goods and people. The "spin-off" economic benefits are the opportunities for capital investment, income, and employment created by the improved access. This is a scoping study; therefore, there is no estimate of the economic dislocations that could impact the existing air transport industry.

The estimated benefits (capital investment and employment) for an All-Weather Road have been incorporated into the Manitoba Bureau of Statistics, Economic Impact Assessment Model that estimates the overall provincial impact.

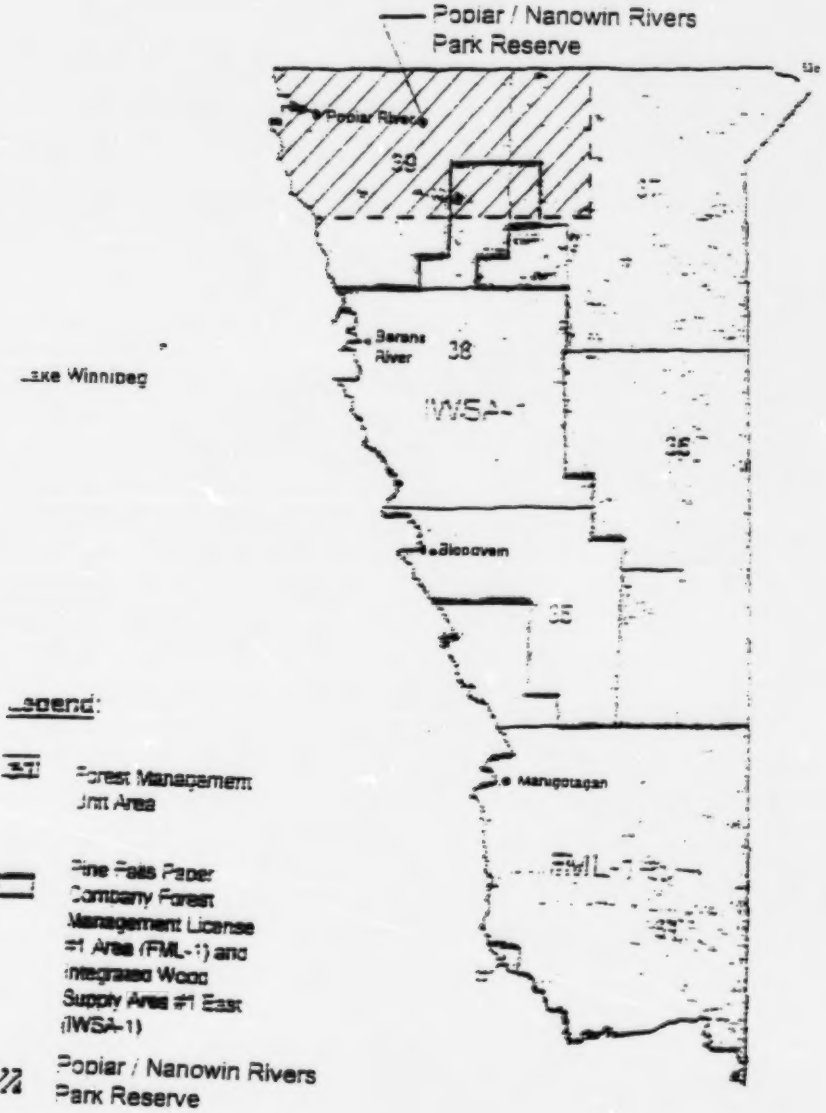
The **Context** of the "spin-off" economic benefits is important. The communities to the east and north of Lake Winnipeg have extremely high unemployment rates. These unemployment rates reflect the lack of opportunities outside traditional pursuits. Without access to gainful employment, these people and communities are supported by transfer payments. The social dependency rate in these communities ranges from 30 to 80 percent. The cost of social assistance payments is a large and growing annual payment, currently amounting to approximately $20 million per year.

Forest Resources to the east and north of Lake Winnipeg represent the most significant development opportunity within the study area. **While there is no approval or implied approval to date**, there is a detailed proposal to develop resources in the southern section of the study area. **For the purposes of this study we have assumed that there is a degree of probability that the southern study area forests will be developed.** The northern forests in the Island Lake/Gods Lake area are not expected to provide any forestry benefits within a 20-year time frame.

Within the Southern Road Section, PFPC is the primary forestry stakeholder on the east side of the lake. Through a Forest Management Licencing Agreement (FML), PFPC holds FML#1 and has the first right of refusal on softwoods harvested in the Integrated Wood Supply Area (IWSA) illustrated on the following page. It should be noted that the IWSA appears to overlap the Poplar/Nanowin Rivers Park Reserve to a small extent.

The PFPC plans call for the construction of a new thermal mechanical pulping plant at Pine Falls, increasing the speed of the paper machines, a 130 million board foot sawmill at Pine Falls, and a sawmill at Berens River. The sawmills at Pine Falls and at Berens River are both contingent on the All-Weather Road access, project licencing, and environmental permits.

Pine Falls Paper Company
Integrated Wood Supply Area



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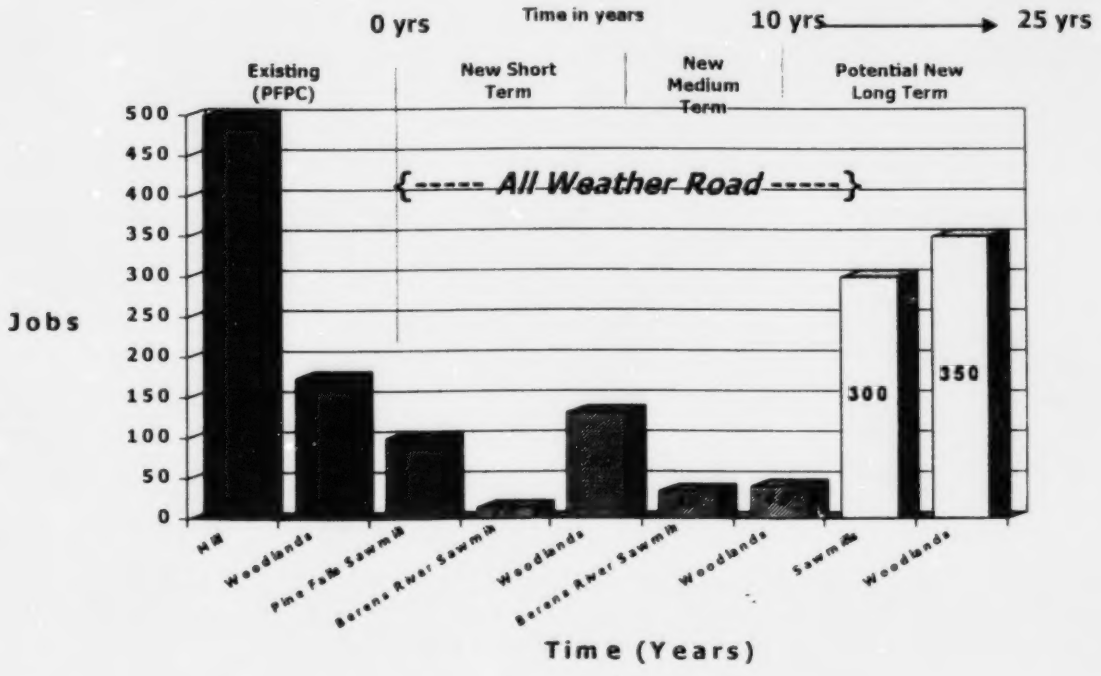
Timing Assumptions for the implementation of these new facilities:

- **Short-Term** (Assuming the All-Weather Road to Berens River would be complete by January 1, 2003)
  - The Berens River sawmill would be commissioned January 1, 2001
  - The Pine Falls sawmill would be commissioned January 1, 2002 and in full production January 1, 2003

- **Medium-Term**
  - The capital investment to the Pine Falls mill (paper machine speed-up) and the upgrade to the Berens River sawmill would be completed by January 1, 2005.

The Overall Forest Industry Potential for New Direct Employment is illustrated below:

Forest Industry – Potential New Direct Employment



Within the Northern Roads Section of the Study Area, the Forestry Branch of Manitoba Conservation has estimated the annual allowable cut of the forests in Sections 2 and 3 of the Hayes River section as follows:

Annual Allowable Cut
Areas 2 and 3 Hayes River Forest Section

Area	AAC (m^3) Softwood	AAC (m^3) Hardwood	AAC (m^3) Total
2	519,220	170,490	689,710
3	331,950	91,570	423,520
Total	**851,170**	**262,060**	**1,113,230**

Source: Forestry Branch, Manitoba Conservation

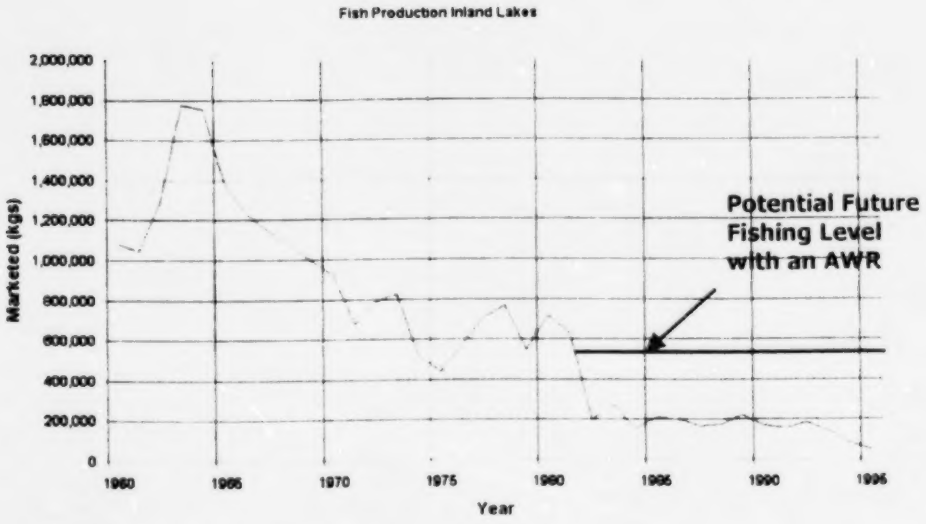
If these more remote resources were developed, the result would be employment opportunities at least two times that shown for the southern section. However, until there is a commitment from communities, government, and industry, the resource only represents a potential benefit and is not included in the Manitoba Bureau of Statistics impact assessment model for a potential All-Weather Road.

Commercial Fishing on Lake Winnipeg is a significant issue. The Lake Winnipeg communities depend on a summer fishery. For the communities of Bloodvein, Berens River, and Poplar River, average annual deliveries have been in the order of 940 000 kg per year, although at times, production has been significantly higher. Fish from these stations is delivered to Islandview via the Goldfield (a boat owned by FFMC) or via the Department of Highways ferry.

The ability to deliver Lake Winnipeg fish by road, with back haul opportunities, would have an immediate reduction in transportation costs of $115,000 per year, which would be realized directly by the fishers. The indirect impact would be to increase the viability of the current fishery, with greater rewards for effort and potentially expanding the fishery by some 150 000 kg per year. The value of the increased harvest is expected to be $450,000 per year.

Commercial Fishing on Inland Lakes within the study area currently produces some 50 000 kg per year. An All-Weather Road would increase commercial fishing by some 350 000 kg per year, or returning the fishery to the level experienced in the early 1980s, as illustrated on the figure below. The gross value would be some $1,050,000 with net income to fishers of $250,000.

Economic Fishery Spin-offs

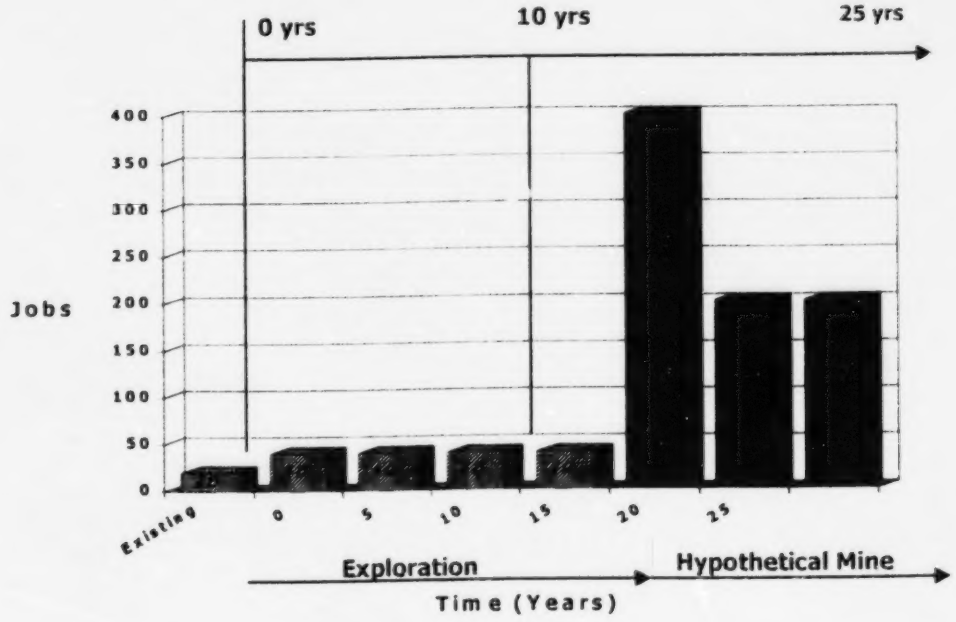


Mineral Exploration and Mining are potentially large opportunities within the Study Area. The Mining Association of Manitoba and the Prospectors and Developers Association of Manitoba are both supportive of developing an All-Weather Road. Neither association, however, is confident in forecasting the economic impact on their industry.

The immediate impact of an All-Weather Road for the mining industry would be to reduce exploration costs. This will attract more exploration to the study area, shifting money from the transportation to more productive activities (e.g., more geophysics or drilling). Further, mineral deposits that are uneconomic without a road system in place, may become economic if a road was available. Transportation is a significant cost to the mining industry. The presence of a road can turn a marginal deposit into a viable operation by reducing the cost of shipping materials into the mine site, and concentrate out. The current lack of infrastructure is a major disincentive to mineral exploration and development on the east and north of Lake Winnipeg.

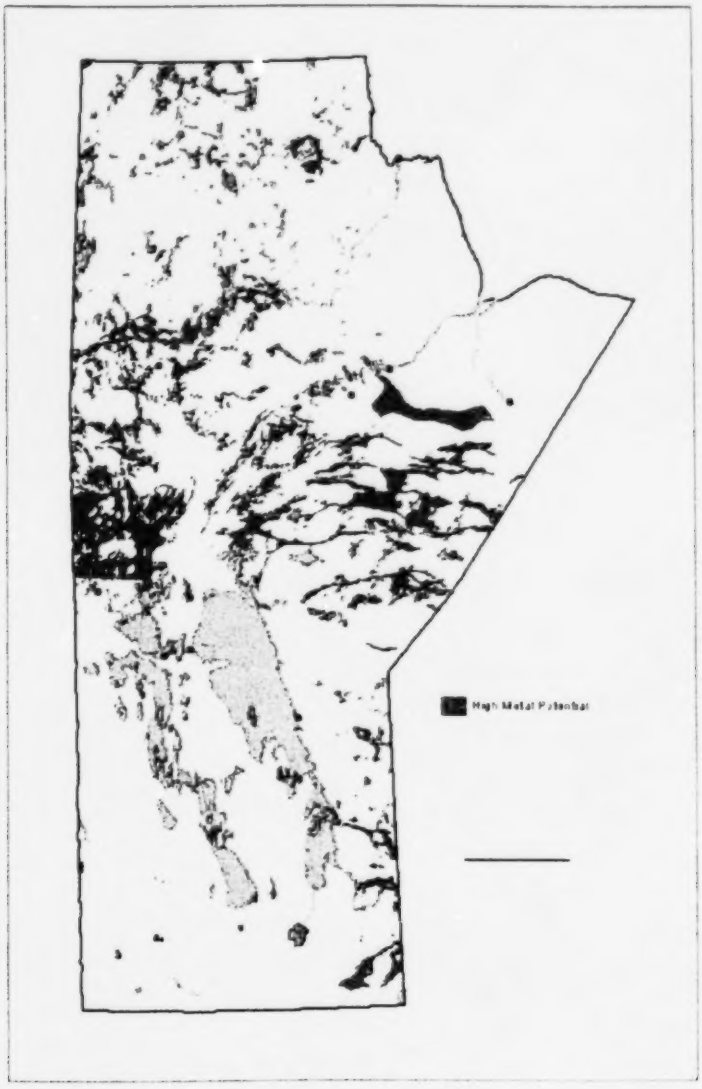
The following figure provides an estimate of potential new direct employment in the exploration field plus the impacts of a hypothetical mine which may not necessarily materialize even with an All-Weather Road.

Mining Industry – Potential New Direct Employment



The map below shows "greenstone" belts, which are considered to be areas of high mineral content. Most of these belts occur in the northern part of the study area in the proximity of Island Lake, Gods Lake, and Oxford Lake. It is widely believed by the mining industry that as an all-weather road reaches these locations that new mines will be brought into production.

High Mining Potential Areas



Tourism Development opportunities will be created by an All-Weather Road. Manitoba has unique resources along the shores of Lake Winnipeg and other large inland lakes. Atikaki Park is known as a world-class natural resource. Most of the visits involve access by float-equipped aircraft.

The current tourist infrastructure consists primarily of "lodges," which have traditionally been hunting and sports fishing facilities. On the East Side of Lake Winnipeg, these pursuits have been broadened to include wilderness canoeing, rafting and some "ecotourism" activities.

There are 30 lodges with a bed capacity of 864 in the study area. These lodges are the backbone of the tourism industry and account for the vast majority of all tourism revenue. Adventure travel and eco-tourism, however, represent a growing opportunity in the industry.

Manitoba Tourism is of the opinion that the largest tourism benefits are derived from existing fly-in fishing lodges. They have said "The fishing and outdoor adventure markets are attracted to the rivers, lakes, and associated pre-Cambrian shield country on the east of Lake Winnipeg by the untouched wilderness characteristics of the region, which would be seriously impacted by the development of road access and increased number of visitors."

This study assumed that there would be net tourism benefits associated with an All-Weather Road and that the road would result in 20 to 40 full-time equivalent jobs within the region and a total capital investment of $5 million. *These levels of benefits are only achievable but could be significantly enhanced if the road was located in conjunction with a Tourism Development Plan.*

Service Sectors will evolve following the construction of an All-Weather Road. However, an All-Weather Road is expected to have a neutral overall impact on the services component of the economy.

The All-Weather Road will have the effect of reducing transportation costs and making business less expensive. The same road, however, will give a broader part of the community easier access to shops and services in larger population centers. The expectation is that the retail/service sector in study area communities will shrink with an All-Weather Road. Compensating for this will be an expansion in local transportation and travel-related services.

The Manitoba Bureau of Statistics - Economic and Tax Revenue Impact Model was used to identify the "spin-off" economic benefits/opportunities for capital investment, income and employment created by the improved access. These benefits (capital investment and employment) have been incorporated into the Manitoba Bureau of Statistics, Economic Impact Assessment Model to estimate the overall provincial impact within the geographic borders of Manitoba. These total provincial impacts are shown below.

Summary of Provincial Impact of Spin-off Benefits
Manitoba Bureau of Statistics Economic Impact and Tax Revenue Assessment Models

	One-Time Capital Impacts	Annual Operations Impacts (Medium-Term)
Labour Income	$46,500,000	$33,500,000
Provincial Taxes	$13,000,000	$5,900,000
Federal Taxes	$14,900,000	$7,000,000
Employment (person years)		
Direct Employment	700	380
Indirect and Induced	540	520
Total Employment	**1,240**	**900**

Construction of the All-Weather Road (over a 10 to 15 year period) and subsequent maintenance/operation will result in savings in social assistance payments. It is estimated that one - third of direct employment, as shown in the table below, will be local and would largely accrue to the federal government. *

Summary of Highway Construction Benefits

	One-Time Capital Impacts	Annual Operations Impacts (Medium-Term)
Labour Income	$220,000,000	$2,000,000
Provincial Taxes	not defined	not defined
Federal Taxes	not defined	not defined
Social Assistance Savings*	$45,000,000	$800,000
Employment (person years)		
Direct Employment	3700*	40*
Indirect and Induced	2500	20
Total Employment	**6,200**	**60**

Source: Calculated using MBS guidelines for highway construction in Manitoba.

8.0 COMPARISON OF WINTER ROAD AND ALL-WEATHER ROAD SYSTEM COSTS

All-Weather Road Construction Costs were identified for two scenarios: for an All-Weather Road from the south - via Manigotogan; and an All-Weather Road from the west - via Norway House (plus SERDC from the south).

Based on cost data supplied by Manitoba Highways and Transportation, route segment project costs were calculated as illustrated below.

All-Weather Road Estimated Project Costs*

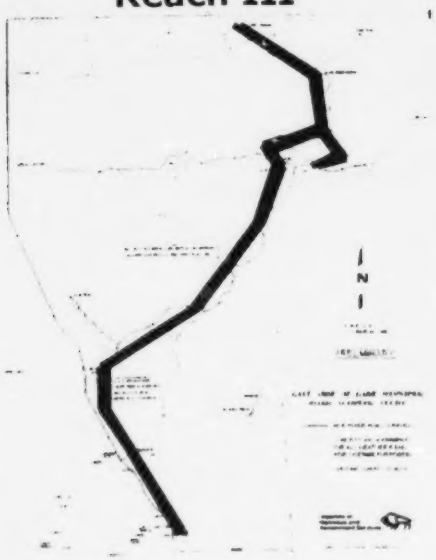
Reach to	Accumulated Cost ($) via Manigotogan	Accumulated Cost ($) via Norway House
Bloodvein and Berens River - Reach I	57 M (155 km)	57 M (155 km)
St. Theresa Point, Wasagamack, Garden Hill, Gods Lake Narrows, and Oxford House - Reaches III and IIIA	292 M (625 km)	240 M (585 km)
Reaches IV and IVA, including connections to: Poplar River, Little Grand Rapids, Pauingassi, Red Sucker Lake, and Gods River	440 M (920 km)	400 M (910 km)

The above estimated costs and All-Weather Road distances are based on conceptual plans only. More reliable cost estimates can only be established after a more detailed route location study and an environmental review has been carried out.

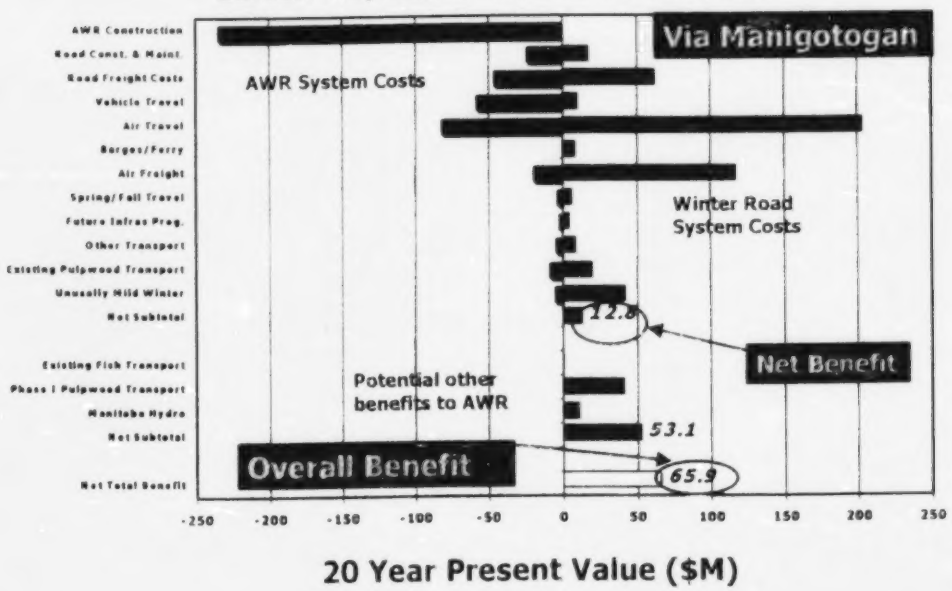
Separate Transport Benefit-Cost Analyses (20-year present value) were carried out for two All-Weather Road scenarios to incrementally serve all twelve communities on the East Side of Lake Winnipeg. These scenarios involved a common component serving the SERDC and a north-south or east-west connection to the existing highway systems for the ILTC and KTC communities.

An All-Weather Road - Main Stem (only) system is illustrated for Reaches III and IIIA on the following pages, along with a benefit-cost comparison of an All-Weather Road versus Winter Road transport. Communities serviced include Bloodvein, Berens River, St. Theresa Point, Wasagamack, Garden Hill, Gods Lake Narrows, and Oxford House for a north-south All-Weather Road system (Reach III) and an east-west (primary access) All-Weather Road system (Reach IIIA). Direct transport **net benefits of $12.8 M** accrue to the north-south route, while direct transport **net costs of $24.3 M** relate to the east-west system. When (currently identified) new resource development projects are added, the **net project benefit of $65.9 M** for the north-south All-Weather Road and **net project benefit of $7.2 M** for the east-west All-Weather Road are achieved.

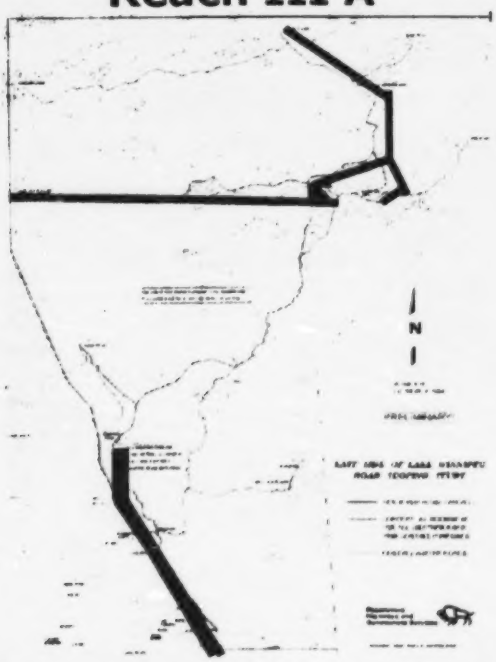
Economic Analysis
Reach III



Economic Analysis Reach III – Preliminary Findings
AWR to Bloodvein, Berens River St. Theresa/Wasagamack, Garden Hill/Island Lake & Oxford House

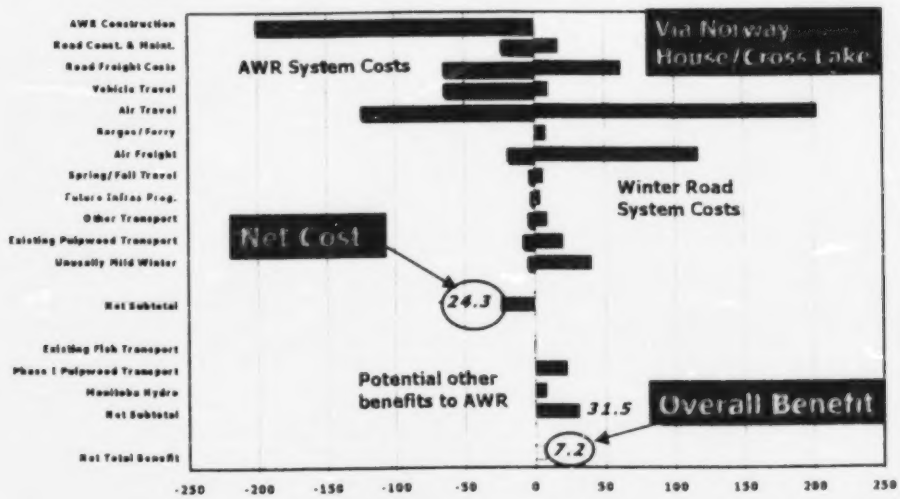


Economic Analysis Reach III A



Economic Analysis Reach III A – Preliminary Findings

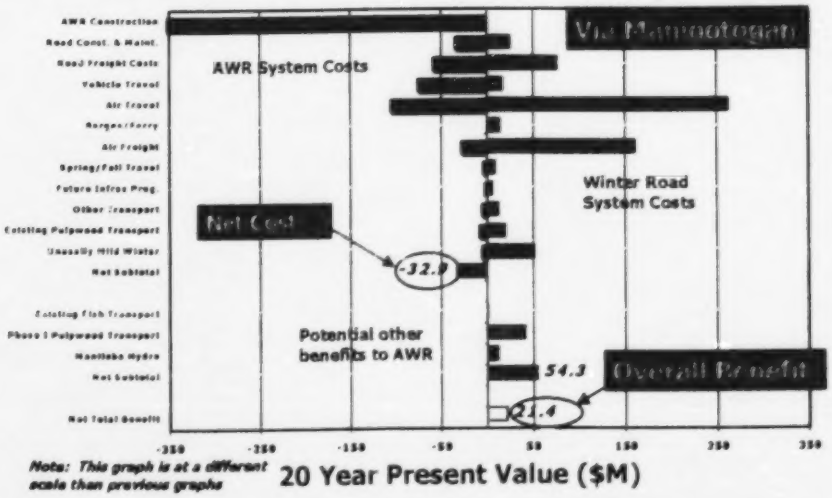
AWR to Bloodvein, Berens River, St. Theresa/Wasagamack, Garden Hill/Island Lake, Gods Lake Narrows & Oxford



An All-Weather Road system, including all twelve East Side communities, is illustrated on the following pages by Reaches IV and IVA. The comparable **net transport costs are $32.9 M** for the north-south All-Weather Road and **$94.6 M** for the east-west All-Weather Road. When new resource development as above is added, the **net project benefits** for the north-south All-Weather Road move to **$21.4 M**, while the **net project costs** for the east-west system are reduced to **$61.9 M**.

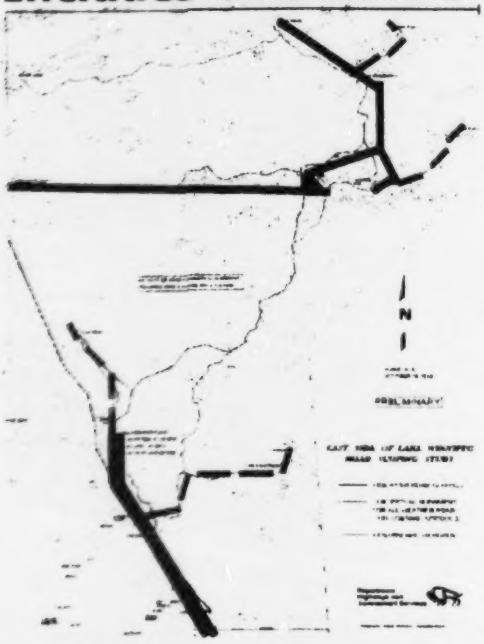
Economic Analysis - Reach IV
Includes Connectors

Economic Analysis Reach IV – Preliminary Findings
AWR to Bloodvein, Berens River, St. Theresa/Wasagamack, Garden Hill/Island Lake, Oxford House and Connectors to Poplar River, Pauingassi, Red Sucker Lake, & Gods River



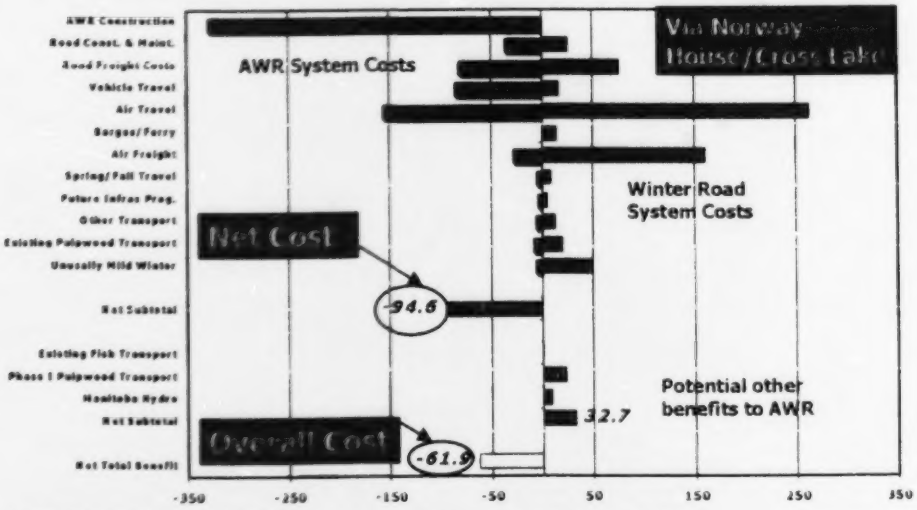
Note: This graph is at a different scale than previous graphs

Economic Analysis - Reach IV A Includes Connectors



Economic Analysis Reach IV A – Preliminary Findings

AWR to Bloodvein, Berens River, St. Theresa/Wasagamack, Garden Hill/Island Lake, Gods Lake Narrows, Oxford and Connectors to Poplar River, Pauingassi, Red Sucker Lake, & Gods River

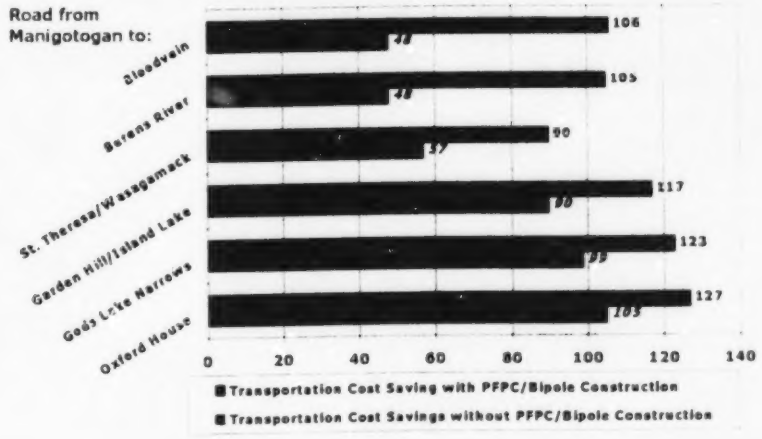


Note: This graph is at a different scale than previous graphs

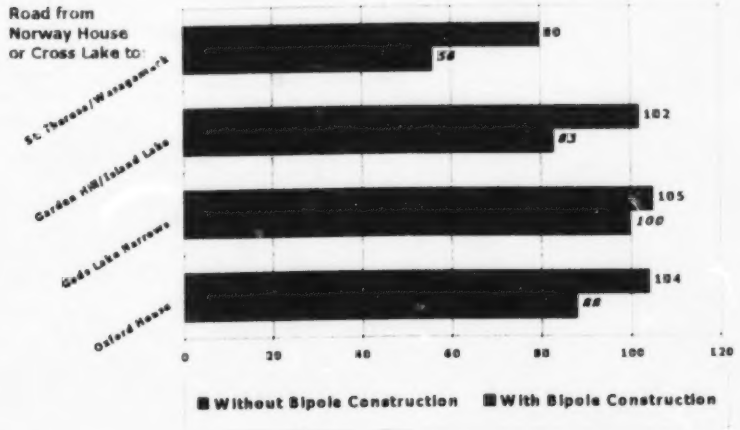
20 Year Present Value ($M)

Relative Cost Coverage of Different Route Segments are identified for the north-south route and the east-west route in the following figures. These indicate the proportion of All-Weather Road main stem costs that are covered by direct transportation savings (without new forestry or Bipole III). The **coverage** ranges from as low as **48 percent** to **105 percent** for an All-Weather Road from Manigotogan. For an All-Weather Road from Norway House, comparable coverage is **56 percent** to **88 percent**.

Transportation Cost Savings as a percent of AWR Costs (%)



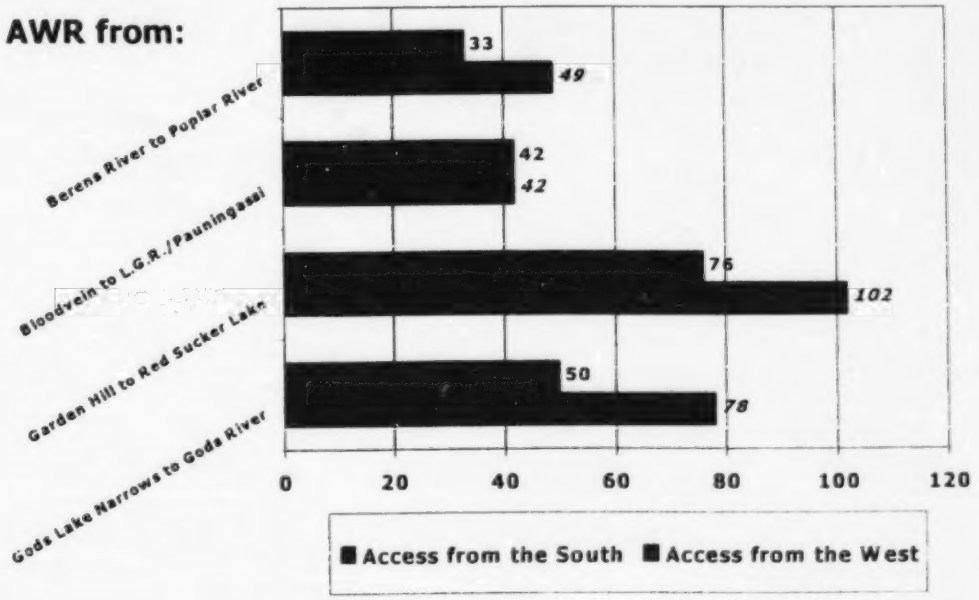
Transportation Cost Savings as a percent of AWR Costs (%)



If new forestry developments and Bipole III are included in these analyses, the **cost coverage** for a route from the south increases from **a low of 90 percent to a high of 127 percent**. For an All-Weather Road from Norway House, the **comparable cost coverage** ranges from **80 to 104 percent**.

For an All-Weather Road from Norway House, the non-main stem communities are more difficult to justify. The following figure illustrates the transportation cost savings relative to costs for an All-Weather Road connection to various communities. Communities such as Poplar River/Little Grand Rapids/Pauingassi have cost savings of 33 to 42 percent of All-Weather Road construction. (Poplar River goes to 49 percent if the main stem All-Weather Road comes from the south.) Red Sucker Lake and Gods River respectively achieve 102 and 78 percent cost coverage for a southern route; and 76 percent and 50 percent cost coverage for a western route.

Transportation Cost Savings/Costs for AWR Connections (%)



Other Benefits of an All-Weather Road System, such as Economic Spin-offs related to All-Weather Road construction and new investment or employment, are not included in the foregoing analyses. These could increase the overall project benefits (on a 20-year present value basis) for a route from the south by another $100 to $150 M. Cost coverages of 160 to 180 percent or benefit-cost ratios of 1.6 to 1.8 are possible for the southern route.

Also not included in the foregoing analyses are socioeconomic aspects such as:

- Improved dietary - health regimes
- Improved access to health care
- Increased educational opportunities
- Improved family ties (particularly with teenage students)
- Broadened social contacts
- Quicker justice/law enforcement services
- Better access to fishing/hunting/trapping territories

9.0 POTENTIAL IMPACT OF REGIONAL CENTRES ON AN ALL-WEATHER ROAD SYSTEM ANALYSIS

Regional Centres are likely to evolve as remote communities on the East Side of Lake Winnipeg achieve All-Weather Road access. There will be a tendency for centralization of administrative and community services. Likely candidates for such centralized services are in the Norway House or Cross Lake area for a east-west road connection and the Island Lake area for either an east-west or north-south All-Weather Road connection.

The future existence of such a regional centre could affect the relative economics of an east-west All-Weather Road relative to a north-south All-Weather Road. In particular, it would affect the relative levels of air passenger traffic being diverted to individual road travel. Little or no impact would be expected in the areas of freight movement, as Winnipeg is the origin for almost all of the freight going into the region.

Within Manitoba's north, both The Pas and Thompson currently function as regional centres. While both communities support larger area populations than Norway House, Cross Lake, or Island Lake would in the future, their make-up includes the primary components of regional centres (e.g., government administration, with 150 to 200 employees; transportation hubs for road/rail/air; full medical facilities, with 15 to 20 doctors and 100± hospital beds; educational facilities, sufficient for one third of population; and substantial resource development support infrastructure).

Definition of a Full Regional Centre would probably include:

- First Nation Governments
- INAC
- Manitoba Aboriginal and Northern Affairs/Conservation/Highways
- RCMP/Justice
- Secondary and Post Secondary School
- Hospital and Related Health Care Facilities
- Manitoba Hydro/MTS
- Forest or Mining Industry Headquarters and Support Service
- Expanded Tourism and Fisheries

Issues Affecting Viability of Regional Centres that need to be recognized include:

- The willingness of Island Lake communities, Red Sucker Lake, the Gods Lake communities, and Oxford House to participate in a single delivery point.

- The concentration of population and travel demand in the Island Lake area requires that it be the primary connection point on the All-Weather Road.

- Low likelihood that First Nation will move their governmental administrative services from Winnipeg or Thompson to a new northern centre in either Norway House, Cross Lake, or one of the remote communities.

- Perceived need to develop a regional post-secondary school that would receive both regional and government support.

- Perceived need to establish a regional hospital in Island Lake area to improve delivery of medical services.

- Ability to overcome the current practice of sending patients requiring complex treatments to larger hospitals in Winnipeg or Thompson. The regional hospitals provide acute care and stabilize patients for transportation and follow-up treatments that do not require the presence of a specialist.

- Recent decisions to put dialysis units into Norway House and one of the Island Lake communities.

- Overcoming the difficulty faced by northern hospitals in attracting and retaining staff.

Overall Conclusions are that development of Regional Centres will likely occur as a natural by-product of the roads system. If there is an east-west system, Norway House or possibly Cross Lake,will likely become the largest centres serving the more remote communities. With the north-south link, the Island Lake communities may develop both an administrative and commercial centre serving communities to the north and east.

For the purposes of the current transportation study, however, there is very little to suggest that any of these developments will be in the near future or will involve significant impact demand for transportation. There seems to be a very low probability of establishing either a regional school system or shifting significant administrative services from Winnipeg or Thompson to any of these locations. A regional hospital in the Island Lake area offers the best prospect for reducing air traffic. This is currently under study and, while it is speculative to suggest what the outcome of that analysis might be, the best case might be a 50 percent reduction in patient air travel. (This equates to a 5 to 10 percent reduction in total air passenger travel.)

Air Travel Impacts of a Regional Centre would, at a maximum, reach the following levels:

- A regional administrative/secondary education centre at Norway House or Cross Lake might reduce air passenger travel by an additional 3 to 5 percent.
- A regional health/secondary education/administrative centre at Norway House or Cross Lake, coupled with a major mining or forestry development, would reduce air passenger travel by an additional 5 to 10 percent.
- If the Regional Centre for an east-west All-Weather Road were established in the Island Lake area instead of Norway House or Cross Lake, the air passenger travel would be similarly reduced. However, individual vehicle traffic costs would be even lower because of reduced travel distances.

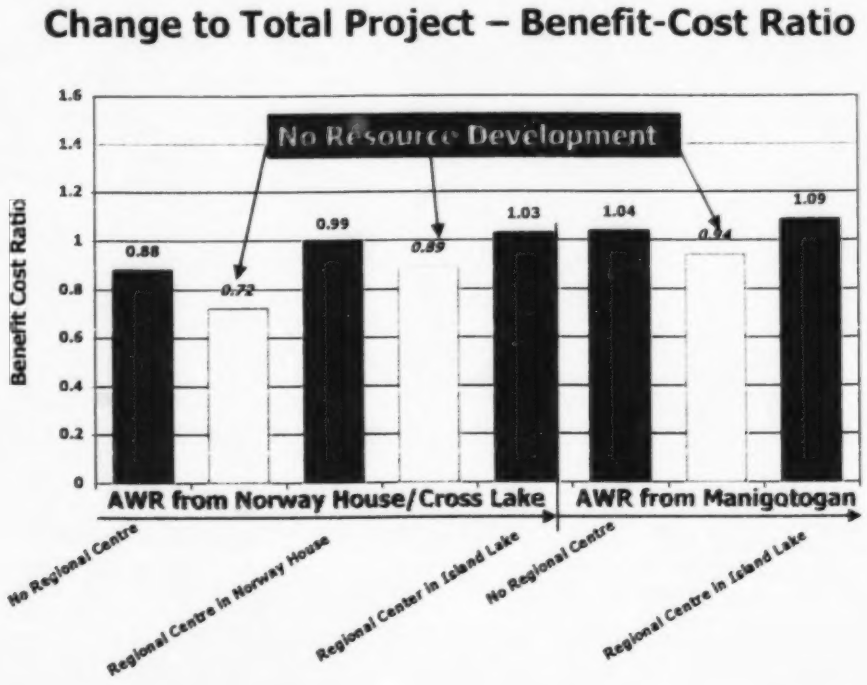
Potential Impacts of a Regional Centre on All-Weather Road Economics are as follows:

- Development of a Regional Centre (with full administrative/education and regional health services) in the Norway House - Cross Lake area will improve the economic justification for an east-west All-Weather Road. It could provide additional 20-year present value benefits in the order of $50 M and produce a benefit-cost ratio of 0.99 compared to 0.82 for the (most favourable) basic analysis of the total project. Locating the Regional Centre in the Island Lake area would increase the additional benefits to $60 M and improve the benefit-cost ratio to 1.03.

- In the context of a north-south All-Weather Road, the development of a similar Regional Centre in the Island Lake area would have a lesser impact. The benefit increase would be $20 M and the benefit-cost ratio would move from 1.04 for the (most favourable) basic analysis of the total project to 1.09.

- Removal of the PFPC - Expansion Proposal/Bipole III project would reduce the benefit-cost ratio for the basic analysis of the complete north-south All-Weather Road to 0.91 and the basic analysis for an east-west connection to 0.72; or 0.94 and 0.89, respectively, if Regional Centres were developed.

The following figure compares the various scenario benefit-cost ratios for the total project area:



10.0 STAKEHOLDER IDENTIFICATION

In General, the construction of an All-Weather Road on the East Side of Lake Winnipeg will provide benefits and drawbacks. While it is fairly obvious that economic benefits will flow to the First Nations communities, Government of Canada, Province of Manitoba, the resource industries, the tourist industry, and utility companies, there are other stakeholders who will experience economic drawbacks. Other groups or individuals may suffer unfavourable environmental impacts, loss of traditional lifestyles, unwelcome (or welcome) social changes, etc.

The First Nation community consultation program was supplemented by a newsletter/questionnaire sent to agencies and individuals whose commercial, recreational, scientific, and social interests might be impacted by such a road. The following figure provides a short synopsis of the responses. It was interesting to see that the resort/lodge tourism trade was not totally opposed to the concept of an All-Weather Road. Proximity of the All-Weather Road to a lodge (closer than 35 km) was, however, an issue.

Not surprising, the transport and supply industry was divided on economic lines; air services were opposed, truckers and store owners were generally supportive.

Within the resource industries, the responses appear to have been based on supporting transportation economics, trappers/fishers/logging companies all anticipated easier access and lower costs to market.

Environmental and other interest groups were largely receptive to the project if done properly. However, there were some respondents who were totally opposed to improved access to this remote area of the province.

Stakeholder Responses

	Totally Opposed	***Conditional Support***	***Totally in Favour***
Resorts/Lodges (11 responses)	**30%**	**35% (35 km dist.)**	**35%**
Transport & Supply Companies (9 responses)	**33% (Air)**	**10% (W.R. Truckers)**	**57% (Trucker & Store Op.)**
Resource Industries Trapping/Fishing/Forestry (5 responses)	—	—	**100%**
Environmental & Other Interest Groups (8 responses)	**25%**	**75% (if done properly)**	—

Major Beneficiaries of the construction of an All-Weather Road to the East Side of Lake Winnipeg communities include benefits to a variety of stakeholders. These can be broadly grouped as follows:

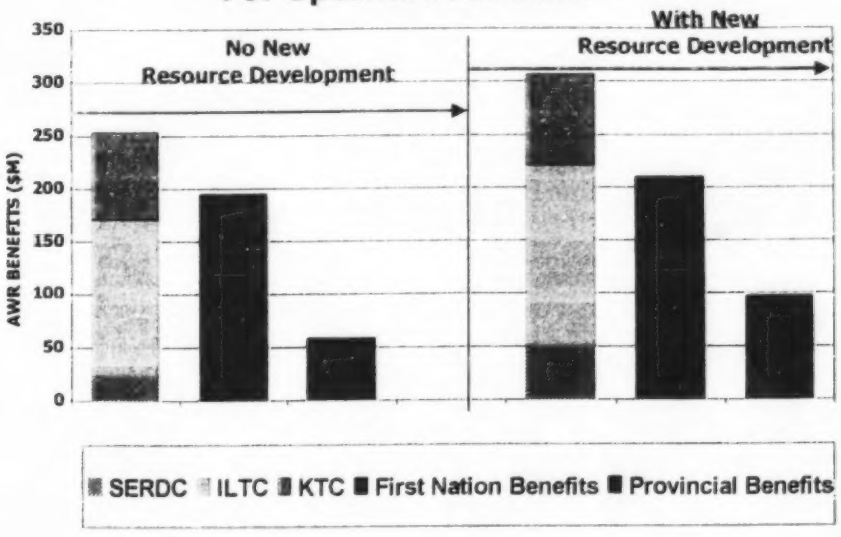
- Government of Canada
- First Nations Communities
- Government of Manitoba
- Resource Industries
- Power and Communication Utilities/Lodges

Because of the predominance of First Nations people within the region, it would appear that the First Nations/Federal Government will recoup more than 90 percent of the benefits related to the movement of freight and probably gain two thirds of the benefits related to the movement of people within/into/out of the communities or the economic spin-offs/employment growth created by an All-Weather Road.

Resource industries, utility service, tourist lodges, and the provincial government will benefit from particular sections of the road that help reduce resource extraction costs, reduce utility maintenance and operating costs, and provide cheaper access for the tourism trade.

For the Optimum Network (Main Stem) of an All-Weather Road with a $292 M estimated construction cost, Stakeholder Benefits Allocation (Twenty-Year Present Value) are presented for the existing situation and new resource development scenarios.

Transportation Benefits/ Stakeholder Allocation For Optimum Network



11.0 COMMUNITY INTERESTS AND CONCERNS

Community Viewpoint - Individual Community Meetings can be summarized as follows:

- Communities serviced with barges (Bloodvein, Berens, and Poplar Rivers) generally have a better transportation system than the more isolated communities, but these communities lose their transportation system at break-up and freeze-up for 8 to 12 weeks each year. In addition to the costs this imposes on the community, the lack of transportation in the late fall months interferes with the commercial fishing industry.

- The more isolated communities with no access to Lake Winnipeg barge services are faced with even more substantial difficulties. The winter road season is short and unpredictable making it difficult to plan major projects. The current system results in a very high cost of food partially due to the fact that stores have to finance and inventory the purchase of their non-perishable items that come in on the winter road. Failure to bring goods in on the winter roads results in extremely high air freight costs. Either way, community members are faced with costs so high that they impact their quality of life. It was noted that the winter road system also imposes inter-community isolation. Travel from one community to another, for most of the year, requires either chartering a plane or flying to Winnipeg on a scheduled service and then back to the destination community. This is prohibitively expensive and has broken contact between communities. The cost of air fare also means that visiting children who are away at school and/or other Band members living outside the community is near impossible.

Responses received regarding the existing winter road are generally summarized as follows:

- Winter road season is short and unpredictable
- Rough winter road surface is hard on vehicles
- Goods are often damaged in transit
- Very long travel times
- Air Freight and passenger fares are expensive
- No inter-community flights
- Airports in some communities require over-water travel
- Cost of air freight for perishable food items is very expensive
- Barge system is near end of life
- Personal boat travel on Lake Winnipeg is dangerous

Major Concerns about an All-Weather Road centred around three themes: land use issues; potential social impacts; and concerns about environment. Each of these issue areas was regarded as being significant and needs to be dealt with in a substantive way if the road is to proceed. In several communities there was a request for the study team to have additional meetings to discuss some, or all, of these issues in more detail even for the purposes of the scoping study.

Perceived Issues include:

- Lack of control over natural resource development/loss of traditional land
- Increased hunting and fishing pressure/impacts on trap lines
- Social impact issues/major change in lifestyle
- Concern about drugs and alcohol/gang development
- Environmental impacts on water quality and wildlife

Perceived Benefits of an All-Weather Road include:

- Reduced cost of living/improved diet and better health
- Reduced cost of construction for housing and community infrastructure
- Improved Inter-community contacts/reduced isolation
- Economic development opportunities
- Reduced cost of transportation/reduced travel times
- Opportunities to visit children who are away at school and to visit hospital patients
- Reduced travel times

Natural resource development, particularly forestry and mining, was a significant issue. It received qualified support subject to financial participation, local controls on development, and substantial public consultation during the planning process.

Overall, there is **General Support** for an All-Weather Road. Support varied from strong to cautious, but usually qualified. Assurances are needed respecting control over local resources. Participation in highway construction and maintenance is important, as is maximizing community benefits. The need for in-depth community consultation on specific issues is suggested.

Specific Community Reactions are summarized in the following table:

	Strong Support	Qualified Support	Significant Reservations	Unknown or Uncertain
Bloodvein			●	
Berens River	●			
Poplar River		●		
Little Grand Rapids			●	
Pauingassi				●
St. Theresa Point	●			
Wasagamack	●			
Garden Hill				●
Oxford House	●			
Gods Lake Narrows	●			
Gods River				●
Red Sucker Lake		●		

For the ILTC and KTC communities, there was no overall consensus on whether the All-Weather Road should be east-west to Norway House/Cross Lake or north-south via Manigotogan. Oxford House definitely preferred an east-west route, but within the other communities visited, the focus, while less route-specific, was on achieving the maximum possible benefits.

12.0 IDENTIFICATION OF ENVIRONMENTAL AND SOCIAL CONCERNS

An All-Weather Road on the East Side of Lake Winnipeg could potentially have significant impacts on the environment and the social fabric. It is therefore important at this stage to identify the general categories of impacts that would accompany the implementation of such a project.

While these actual impacts will be considerably different for an All-Weather Road originating at Manigotogan than for an All-Weather Road coming from Norway House or Cross Lake, the following activities will have to be addressed in either case:

- Land Use Planning
- Route Selection
- Environmental Impact Assessments*
- Preliminary Design
- Right-of-Way Acquisition
- Final Design
- Environmental Approvals*
- Tendering/Employment Strategies
- Construction (staged to minimize impacts)
- Mitigation
- Operation and Maintenance

* including the appropriate Federal Process.

Potential Physical and Habitat Impacts can generally be categorized as follows:

a) Preconstruction and Construction

Activities that will require special attention are stream crossings and vegetation/drainage and borrow pits/ access roads and embankments/noise, dust, and chemicals/camp sites and fuel handling/wildlife conflict. These will apply regardless of the actual physical alignment of the roadway corridor.

b) Route Location

Particular concerns that will influence route location on an All-Weather Road from Manigotogan include:

- Bloodvein/Leyond/Pigeon River Heritage Status
- Forest Management Issues/Firefighting
- Numerous Stream Crossings
- Poplar/Nanowin Rivers Park Reserve
- Hudwin Lake Area (including wild rice harvesting)
- Various Lodges/Outfitter Camps
- Registered Traplines/Commercial Fishing Lakes
- Caribou Migration Routes
- Traditional Hunting Grounds
- Heritage/Archaeological Concerns
- Community Proximity at Bloodvein/Berens River/St. Theresa Point/Wasagamack/Gods Lake Narrows (traffic through communities)
- Potential Mining Finds

An All-Weather Road from Norway House or Cross Lake would have many of the same or similar concerns, plus specifically Nelson River Crossing and Molson/Stevenson Lakes; with greater focus on mineral exploitation and less on forestry development.

c) Consequential Physical/Habitat/Socioeconomic Impacts will generally be the result of resource development. Greater mobility will create new opportunities for resource development, resource exploitation, forest firefighting, new settlements, and tourism. Some of these results will be net benefits and are listed as follows:

- Access to hunting/fishing/tourism/lodges
- Access for exploration/mining/forestry firefighting
- Access for new reserve settlements/new business

The following issues however may be negative:

- Unauthorized roads.
- Off-reserve settlements.

d) Service Consequences could also be viewed as negative:

- Reduced air service
- Higher cost air service
- Reduced or total loss of barge service on Lake Winnipeg
- Declining value of airstrips; possible closure of some.

e) Employment Opportunities

The All-Weather Road construction and maintenance will produce new job and job training opportunities. An All-Weather Road will drastically increase road transport and create some service industry employment.

If a regional service centre is created, it would offer more opportunities for employment in the health/education fields.

Resource development is likely to be the largest job creator. This could happen in either the forestry or mining sectors, depending on the route chosen; increased fisheries are also possible, especially for a southern route.

Tourism could, with an appropriate regional plan, create new jobs in specific areas. Growth of some existing lodge operations would have a similar effect.

f) Socioeconomic Values

Throughout the region and in each of the communities, an All-Weather Road, while it has the potential for new economic opportunities and a more affordable/better standard of living, will also result in losses. These will likely be most significant in the areas of Wilderness Setting, Traditional Lifestyles, and Traditional Values. Considerable planning and effort will be required to minimize these losses.

Local participation in Resource Management, Financial Partnership Ventures, Community Health/ Education/Justice will be important if All-Weather Road is going to benefit the existing communities. Longer range population growth will put great pressure on existing resources with or without an All-Weather Road. Planning strategies may need to be developed to deal with either scenario.